

C L A I M S

1. A device for the continuous filling and closing of cardboard/plastic composite packages which are open on one side, in particular beverage packages, with a filling zone for filling the open packages (P), and a closing zone for closing the open package end, wherein the individual zones are rotating functional wheels with recesses (12) arranged on the outside, including a filling wheel (3) and a closing wheel (4), wherein the individual packages (P) are arranged in cell cages (8) which are successively transferred to the individual wheels (3, 4), wherein the cell cages (8) between the individual wheels (3, 4) are held in the recesses (12) of the wheels (3, 4) in a ~~non~~ non-positive manner by means of magnets ~~(19),~~
~~characterised in that~~
~~— (19), wherein~~ for transferring the cell cages (8), transfer wheels (6, 6') with recesses (12') arranged on the outside are provided ~~between the individual wheels (3, 4),~~ and in that the transfer wheels (6, 6') comprise means for rotating the cell cages (8) in their recesses (12'),
characterised in that
as a means for rotating the cell cages in their
recesses (12'), for each recess (12') a rotatably
held control element (25) is provided which by way of
a drive is rotated such that the cell cage (8)
adjoins the ~~(12')~~ magnets (19) of the functional
wheels (1, 2, 3, 4, 5) (inward transfer) or is

detached from them (outward transfer) without any jerking or jolting.

2. The device according to claim 1,
c h a r a c t e r i s e d i n t h a t
filling takes place in an aseptic way; in that for
the purpose of sterilising the packages (P), a
sterilising wheel (2) is provided upstream of the
filling wheel (3), and in that the entire transport
zone from the sterilising wheel (2) to the filling
wheel (3) to and including the closing wheel (4) is a
closed sterile channel (7).
3. The device according to claim 2,
c h a r a c t e r i s e d i n t h a t
upstream of the sterilising wheel (2), a prefolding
wheel (1) for prefolding the still open end of the
package is provided.
4. The device according to any one of claims 1 to 3,
c h a r a c t e r i s e d i n t h a t
downstream of the closing wheel (4), a package form
wheel (5) to form a cuboid package and to fold back
the still protruding ears of the package is provided.
5. The device according to any one of claims 1 to 4,
c h a r a c t e r i s e d i n t h a t
~~— as a means for rotating the cell cages in their~~
~~recesses (12'), for each recess (12') a rotatably~~
~~held control element (25) is provided which by way of~~
~~a drive is rotated such that the cell cage (8)~~
~~adjoins the magnets (19) of the functional wheels (1,~~
~~2, 3, 4, 5) (inward transfer) or is detached from~~

~~them (outward transfer) without any jerking or jolting.~~

~~6. The device according to claim 5,~~
~~characterised in that~~
the control element (25) comprises a form which interacts in a positive-locking manner with the cell cage (8).

76. The device according to ~~claim 5 or 6~~any one of claims 1 to 5,
characterised in that
the control system is a cam control with a fixed control slide (27) for guiding a sliding block (28) arranged on the control element (25).

87. The device according to any one of claims 1 to 76,
characterised in that
guide rails (24) for constrained guidance of the cell cages (8) are arranged in the region of the transfer wheels (6, 6'), at a distance from these transfer wheels (6, 6').

98. The device according to any one of claims 1 to 87,
characterised in that
all wheels (1, 2, 3, 4, 5) including the transfer wheels (6, 6') are arranged in one plane, and in that the empty packages (P) are fed from above into the cell cages (8), and the full and closed packages (P') are removed upward from the cell cages (8).

109. The device according to claim 98,
c h a r a c t e r i s e d i n t h a t
inserting and removing the packages (P) into/from the
cell cages (8) takes place along a helical path.
110. The device according to any one of claims 1 to 109,
c h a r a c t e r i s e d i n t h a t
the number of cell cages (8) used is finite, and
corresponds to the number of the maximum occupiable
accommodation stations of all wheels (1, 2, 3, 4, 5)
and transfer wheels (6, 6').
121. A cell cage for the transport of cardboard/plastic
composite packages open on one side, in particular
beverage packages, for use with the device according
to any one of claims 1 to 110,
c h a r a c t e r i s e d b y
an open-top cell body (15) for accommodating a
package (P) to be filled, and at least one collar
(16, 17), connected to the cell body (15), which
collar comprises at least one upward or downward
protruding driver element (21).
132. The cell cage according to claim 121,
c h a r a c t e r i s e d i n t h a t
the cell cage (8) comprises an upper collar (16) and
a lower collar (17).
143. The cell cage according to claim ~~12 or 131~~ or 12,
c h a r a c t e r i s e d i n t h a t
each collar (16, 17) comprises at least one bearing
pin (18).

154. The cell cage according to claim 143,
c h a r a c t e r i s e d i n t h a t
each bearing pin (18) is made from a ferromagnetic
material.

165. The cell cage according to ~~one of claims 12 to~~
13claim 11 or 12,
c h a r a c t e r i s e d i n t h a t
each cell body (15) comprises four wall plates (15A,
15B, 15C, 15D) and a cell floor (20).

176. The cell cage according to claim 165,
c h a r a c t e r i s e d i n t h a t
the cell floor (20) is designed so as to be height-
adjustable within the cell body (15).
187. The cell cage according to any one of claims 11 to
~~17~~10 to 16,
c h a r a c t e r i s e d i n t h a t
the driver element (21) at the same time serves as an
index pin to determine the orientation of the cell
cage (8).